

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A method for continuously producing a metal laminate, the method comprising:

heat-treating a film comprising a thermoplastic polymer, which is capable of forming an optically anisotropic melt phase, on a heat treatment roll having unevenness on a surface thereof without transferring the unevenness to the film; and,

bonding a metal sheet to at least one side of the heat-treated film.

Claim 2 (Currently Amended): The method ~~of producing the metal laminate~~ according to Claim 1, wherein a thermal dimensional change of said heat-treated film is not more than 0.1% at 200°C.

Claim 3 (Currently Amended): The method ~~of producing the metal laminate~~ according to Claim 1, wherein the metal sheet is continuously bonded to at least one side of the film by thermal press-bonding.

Claim 4 (Currently Amended): The method ~~of producing the metal laminate~~ according to Claim 1, wherein the film is heat-treated on the heat treatment roll having the unevenness on the surface thereof under substantially no pressure.

Claim 5 (Currently Amended): The method ~~of producing the metal laminate~~ according to Claim 1, wherein a height of the unevenness provided on the surface of the heat treatment roll is within the range from 1 μm to 15 μm .

Application No. 10/090,747

Reply to Office Action of February 11, 2004

Claim 6 (Currently Amended): The method of ~~producing the metal laminate~~ according to Claim 1, wherein a temperature of the heat treatment roll is within the range from a temperature lower by 30°C than a thermal deflection temperature of the film to the thermal deflection temperature.

SUPPORT FOR THE AMENDMENT

This Amendment amends Claims 1-6. Support for the amendments is found in the specification and claims as originally filed. In particular, implicit support for Claim 1 is found in the specification at least at page 14, line 26 to page 15, line 4 (esp. page 15, lines 1-2). No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-6 will be pending in this application. Claim 1 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Applicants thank the Examiner for the courtesies extended to their representative during the April 15, 2004, personal interview.

The present invention provides a method for producing a laminate of a thermoplastic polymer, which is capable of forming an optically anisotropic melt phase, and a metal sheet. By heat-treating a film of the thermoplastic polymer on a heat treatment roll having unevenness prior to bonding the polymer film to the metal sheet, residual strain in the film can be eliminated and a laminate with superior dimensional stability and flatness can be obtained.

Claims 1-6 are rejected under 35 U.S.C. § 103(a) over EP 0 507 332 ("Saito") in view of U.S. Patent No. 5,843,562 ("Onodera").

Saito discloses forming a laminate by pressing a liquid crystal polymer film and at least one metal foil at elevated temperatures between press rolls.

However, Saito is silent about heat-treating a polymer film on a press roll having an uneven surface, which could produce a roughened polymer film surface. The Office Action admits that "Saito [sic] et al. are silent as to using an LCP film having a roughened surface." Office Action at page 2, section 3, line 8.

The Office Action relies upon Onodera for disclosing that press rolls having surface patterns can be used to emboss the patterns onto polymer films.

However, the cited prior art fails to suggest the independent Claim 1 limitation of "heat-treating a film comprising a thermoplastic polymer ... on a heat treatment roll having unevenness on a surface thereof *without transferring the unevenness to the film*". Thus, the prior art rejection should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Customer Number

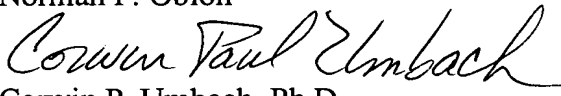
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 08/03)

NFO:CPU\la

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon


Corwin P. Umbach, Ph.D.
Registration No. 40,211